

COMMONWEALTH OF VIRGINIA
Department of Environmental Quality
Piedmont Regional Office

STATEMENT OF LEGAL AND FACTUAL BASIS

Super Radiator Coils
451 Southlake Boulevard Richmond, Virginia
Permit No. PRO50906

Title V of the 1990 Clean Air Act Amendments required each state to develop a permit program to ensure that certain facilities have federal Air Pollution Operating Permits, called Title V Operating Permits. As required by 40 CFR Part 70 and 9 VAC 5 Chapter 80, Super Radiator Coils has applied for a Title V Operating Permit for its heat transfer coil manufacturing plant, 451 Southlake Boulevard-Richmond facility. The Department has reviewed the application and has prepared a draft Title V Operating Permit.

Engineer/Permit Contact:_____

Date:

Air Permit Manager:_____

Date:

Regional Permit Manager:_____

Date:

FACILITY INFORMATION

Permittee/ Facility

Super Radiator Coils
451 Southlake Boulevard
Richmond, VA 23236

Plant ID: 041-0110

SOURCE DESCRIPTION

SIC Code: 3585 – Refrigeration and Heating Equipment
3548 – Welding Apparatus
2448 – Wood Pallets and Skids

The facility is a manufacturer of finned tube heat transfer coils. Hairpin benders and punch presses are used, operating independently, to make tubes and fins, respectively. Their outputs are then assembled and put through a hydro expanding process that joins tubing and fins. Then the product is placed in the solvent degreaser for cleaning. Next the product goes through brazing or welding. Depending upon customer requirements, the product may be spray painted. The last operation is to crate the finished finned tube coil for shipment. Most of the facility was originally constructed in 1980, with the paint spray booth being added in 1989 and another vapor degreaser added in 2004.

The facility is a Title V major source of more than 10 tons/yr of a single federal HAP, perchloroethylene. This source is located in the Richmond Ozone Nonattainment area (marginal) and is in attainment area for all other pollutants. The facility was previously permitted under a Minor NSR Permit issued on July 15, 2004.

COMPLIANCE STATUS

After receiving a construct and operate permit that included the vapor degreasing operation in 1980, the facility was issued a NOV in 1991 for constructing a paint spray booth (in 1989 as noted above) without a permit and violating annual hours of operation and VOC emission limits (vapor degreaser) from the 1980 permit. As a result of these violations, the source was issued a modified permit in 1992 that placed new restrictions and limits on the vapor degreaser and paint spray booth. The 1992 permit superseded the earlier 1980 permit. A New Source Review permit was issued August 30, 2000 to increase the amount of perchloroethylene throughput and the corresponding emission limit and to remove the spray booth as a significant emission unit since the spray booth's PTE has now been determined to be exempt from Article 6/insignificant for Title V purposes (4.73 tons/yr VOC). A New Source Review permit was issued July 15, 2004 superseding the August 30, 2000 permit. The July 15, 2004 permit was issued to construct an open top vapor degreaser.

The facility was last inspected on February 24, 2006 and was found to be in compliance.

EMISSION UNIT AND CONTROL DEVICE IDENTIFICATION

A. The emissions units at this facility consist of the following:

Emission Unit ID	Stack ID	Emission Unit Description	Size/Rated Capacity*	Pollution Control Device (PCD) Description	PCD ID	Pollutant Controlled	Applicable Permit Date
E3	V1	Open Top Vapor Degreaser Autosonics Model 302 Installed 1980	7' x 14' 2,000 lbs product/hour	Condenser and freeboard refrigeration device	N/A	Perchloroet hylene	July 15, 2004
E4	V2	Open Top Vapor Degreaser Ultra-Kool Model 160-30-40 Installed 2005	12,000 lbs product/hour	Condenser and freeboard refrigeration device	N/A	Perchloroet hylene	July 15, 2004

EMISSIONS INVENTORY

An emission update was received for the year 2005. The actual annual throughput of HAP (perchloroethylene) from the degreaser was 33.17 tons.

APPLICABLE REQUIREMENTS FOR THE AUTOSONICS OPEN TOP VAPOR DEGREASER (EMISSION UNIT ID E3 and E4)

The Autosonics vapor degreaser (Unit Ref. No. E3) and the Ultra-Kool vapor degreaser (Unit Ref. No. E4) has the following applicable requirements, from the specific conditions from the Minor NSR Permit issued July 15, 2004:

Condition #3: The vapor degreasers shall be equipped with a primary condenser each, a device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils, and a vapor level control device that shuts off sump heat if the vapor level in the vapor cleaning machine rises above the height of the primary condenser.
(9 VAC 5-50-260)

Condition #4: VOC/HAP Emissions from the vapor degreasers shall be controlled by a freeboard refrigeration device, reduced room draft, and a freeboard ratio of at least 1.0. The vapor degreasers and its emission control components shall be provided with adequate access for inspection.
(9 VAC 5-50-260)

Condition #5: The throughput of perchloroethylene makeup solvent for vapor degreaser Ref. No: E-3 shall not exceed 90.0 tons/yr, calculated monthly as the sum of each consecutive 12 month period.

(9 VAC 5-80-1180 and 9 VAC 5-50-260)

Condition #6: The throughput of perchloroethylene makeup solvent for vapor degreaser Ref. No: E-4 shall not exceed 31.5 tons/yr, calculated monthly as the sum of each consecutive 12 month period.

Condition #7: Perchloroethylene emissions from the degreaser (E3) shall not exceed 60.0 lbs/hr nor 90.0 tons/year.

(9 VAC 5-50-260 and 9 VAC 5-50-180)

Condition #8: Perchloroethylene emissions from the degreaser (E4) shall not exceed 6.71 lbs/hr nor 31.5 tons/year.

Condition #10: Monthly and annual records of perchloroethylene.

(9 VAC 5-50-50)

In addition, the vapor degreasers has the following applicable requirements from the MACT (40 CFR 63) Subpart T (National Emission Standards for Halogenated Solvent Cleaning) (Condition #9 of 2004 permit)

- T1 - reduced room draft (40 CFR 63.463(a)(1)(ii))
- T2 - freeboard ratio greater than 0.75 (40 CFR 63.463(a)(2))
- T3 - hoist speed of equal to or less than 11 ft/min (40 CFR 63.463(a)(3))
- T4 - sump heat/solvent level interlock (40 CFR 63.463(a)(4))
- T5 - sump heat/vapor level interlock (40 CFR 63.463(a)(5))
- T6 - primary condenser (40 CFR 63.463(a)(6))
- T7 - freeboard ratio greater than 1.0, operate freeboard refrigeration device, employ reduced room draft (40 CFR 63.463(b)(2)(i))
- T8 - reduced room draft (40 CFR 63.463(d)(1)(ii))
- T9 - hoist speed 3 ft/min or less (40 CFR 63.463(d)(2))
- T10 - parts oriented so solvent drains freely (40 CFR 63.463(d)(4))
- T11 - parts not removed from degreaser until dripping stops (40 CFR 63.463(d)(5))
- T12 - during startup, primary condenser activated before condenser (40 CFR 63.463(d)(6))
- T13 - during shutdown, sump heater deactivated before primary condenser is turned off. (40 CFR 63.463(d)(7))
- T14 - Threaded couplings and submerged piping to be used in solvent transfers (40 CFR 63.463(d)(8))
- T15 - maintain solvent degreaser and control equipment according to manufacturer's recommendations. (40 CFR 63.463(d)(9))
- T16 - degreaser operators shall complete operating procedures test (40 CFR 63.463(d)(10))

- T17 - waste solvents, still bottoms, and sump bottoms to be stored in closed containers. (40 CFR 63.463(d)(11))
- T18 - conduct monitoring of each control device in accordance with 40 CFR 63.466
- T19 - chilled air blanket temperature no greater than 30 percent of solvent's boiling point. (40 CFR 63.463(e)(2)(i))
- T20 - air flow across the top of the freeboard area not to exceed 50 ft/min using the procedures of 63.466(d). (40 CFR 63.463(e)(2)(ii)(A))
- T21 - establish and maintain the operating conditions under which the wind speed was demonstrated to be 50 ft/min or less as described in 63.466(d). (40 CFR 63.463(e)(2)(ii)(B))
- T22 - determine potential to emit (PTE) from all solvent cleaning operations. (40 CFR 63.465(e)(1))
- T23 - weekly monitoring and recording conducted for temperature of air blanket during idle mode. (40 CFR 63.466(a)(1))
- T24 - monthly monitoring and recording conducted for hoist speed. (40 CFR 63.466(c)(1-3))
- T25 - conduct initial monitoring test of windspeed and room parameters followed by quarterly monitoring of windspeed and weekly monitoring of room parameters. (40 CFR 63.466(d)(1)(i-ii))
- T26 - maintain records of owner's manuals for the vapor degreaser and all of its control devices for the machine's lifetime. (40 CFR 63.467(a)(1))
- T27 - date of manufacture for the solvent cleaning machine and all of its control devices for the machine's lifetime. (40 CFR 63.467(a)(2))
- T28 - halogenated HAP solvent content for each solvent used for the machine's lifetime. (40 CFR 63.467(a)(5))
- T29 - the results of control device monitoring required by 63.466 for a period of 5 years. (40 CFR 63.467(b)(1))
- T30 - estimates of annual solvent consumption for a period of 5 years. (40 CFR 63.467(b)(3))
- T31 - submit annual report including annual solvent consumption. (40 CFR 63.468(f)(1-3))
- T32 - submit semiannual exceedance reports. (40 CFR 63.468(h)(1-3))

GENERALLY APPLICABLE STANDARD REQUIREMENTS

New and Modified Source Opacity Standard - Unless specified otherwise in this part, on or after the date on which the performance test required to be conducted by 9 VAC 5-50-30 is completed, no owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any visible emissions which exhibit greater than 20% opacity, except for one six-minute period in any one hour of not more than 30% opacity. Failure to meet the requirements of this section because of the presence of water vapor shall not be a violation of this section. (9 VAC 5-50-80)

Testing - The permitted facility shall be constructed so as to allow for emissions testing at any

time using appropriate methods. Upon request from the Department, test ports shall be provided at the appropriate locations. EPA Test Method 9 should be used for the Visible Emission testing for the facility and EPA Test Method 18 should be used for VOC/HAP for the degreaser. (9 VAC 5-50-30 and 9 VAC 5-80-110)

Additionally, certain conditions within existing NSR permits may be applicable to all newly constructed or modified equipment that receive a permit. Below is a condition from the 2004 NSR permit:

Condition #15

In order to minimize the duration and frequency of excess emissions due to malfunctions of process equipment or air pollution control equipment, the permittee shall:

- a. Develop a maintenance schedule and maintain records of all scheduled and non-scheduled maintenance. These records shall be maintained on site for a period of five (5) years and shall be made available to DEQ personnel upon request.
- b. Maintain an inventory of spare parts that are needed to minimize durations of air pollution control equipment breakdowns.
- c. Have available written operating procedures for equipment. These procedures shall be based on the manufacturer's recommendations, at a minimum.
- d. Train operators in the proper operation of all such equipment and familiarize the operators with the written operating procedures. The permittee shall maintain records of the training provided including the names of trainees, the date of training and the nature of the training.

Records of maintenance and training shall be maintained on site for a period of five years and shall be made available to DEQ personnel upon request.
(9 VAC 5-50-20 E)

This condition is being retained in the Title V permit because it is an applicable requirement generally applied to all modified and newly constructed equipment permitted through the minor NSR permit program.

FUTURE APPLICABLE REQUIREMENTS - N/A

INAPPLICABLE REQUIREMENTS

The fuel burning equipment (space heaters and two boilers) at this facility are natural gas fired combustion units with rated capacities below 10 Million BTU/hr. This size makes these units insignificant for purposes of Title V (9 VAC 5-80-720 A&C) and they are not applicable to 40 CFR 63, Subpart DDDDD because they fall under 40 CFR 63.7506 c. They are also below the applicability thresholds for Chapter-Article 4-4 and Chapter-Article 4-8.

OBSOLETE REQUIREMENTS

Certain conditions of the 2004 NSR permit for the source are obsolete, no longer serve any meaningful purpose, and are unnecessary for Title V considerations.

Condition 12 of the 2004 permit is not being included as an applicable requirement in the Title V permit because it is out-dated. The Part 70 regulations define specific inspection and entry requirements consistent with the issuance of a Title V permit. These requirements are described in Condition Q in the General Permit Condition Section of the Title V permit and are at least as stringent as the NSR requirements. Inclusion of this condition would be redundant and the requirements have been overtaken by the Title V (Part 70) regulations.

Condition 13 of the 2004 permit is not being included as an applicable requirement in the Title V permit because it is included in the Condition F in the General Permit Condition Section of the Title V permit and is included as part of the malfunction reporting requirements for the overall permit. Including this condition a separate enforceable condition on the permitted equipment in addition to the entire listing of equipment covered by the Title V permit creates a situation where conditions are both redundant and confusing.

Condition 14 of the 2004 permit is not being included as an applicable requirement in the Title V permit because it is redundant because it is included in Condition I in the General Permit Condition Section of the Title V permit.

Condition 16 from the 2004 permit is being left out of the Title V permit because the condition defines the causes for modification or revocation of an NSR permit which can be considered extraneous to the Title V permit. The assumption underlying this determination is that if an NSR permit is revoked or modified through unsolicited action by DEQ, the Title V permit will be changed in a separate and independent action from the NSR change. The Title V permit will change to reflect the changes in applicable requirements brought about by the NSR change.

Condition 17 of the 2004 permit is not being included as an applicable requirement in the Title V permit. Condition T in the General Permit Condition Section of the Title V permit describes the requirements for transfer of ownership relative to the Title V permit. The transfer of ownership requirements for the NSR permit are therefore inappropriate for inclusion in the Title V permit.

Condition 19 of the 2004 permit is not being included as an applicable requirement in the Title V permit. Condition S in the General Permit Condition Section of the Title V permit describes the requirements for permit availability relative to the Title V permit. The permit copy requirements for the NSR permit are therefore inappropriate for inclusion in the Title V permit.

STREAMLINED REQUIREMENTS

Some provisions of Subpart T – National Emission Standards for Halogenated Solvent Cleaning (40 CFR 63.460) can be streamlined by other provisions of Subpart T:

Subpart T applicable requirements T1, T7, T8, and T20 all concern reduced room draft over the degreaser, the most stringent of these, T20, can apply for all of them.

Subpart T applicable requirements T2 and T7 both concern freeboard ratio, the most stringent of these, T7, can apply for both of them.

Subpart T applicable requirements T3 and T9 both concern hoist speed, the most stringent of these, T9, can apply for both of them.

Subpart T applicable requirements T7 and T19 both concern refrigerated air blanketing, the most stringent of these, T19, can apply for both of them.

Additionally, Conditions #3 and #4 of the 2004 permit are identical to (and were based on) MACT requirements T4, T5, T6 and T7. Because of this, conditions #3 and #4 will be streamlined by the MACT requirements T4, T5, T6 and T7.

As all of the consolidated requirements are existing MACT Subpart T standards, that by definition (see periodic monitoring section) incorporate their own periodic monitoring, no special streamlined monitoring protocols are necessary.

GENERAL TERMS AND CONDITIONS

The permit contains general conditions required by 40 CFR Part 70 and 9 VAC 5-80-110, that apply to all Federal operating permit sources. These include requirements for submitting semi-annual monitoring reports and an annual compliance certification report. The permit also requires notification of deviations from permit requirements or any excess emissions, including those caused by upsets, within one business day. These conditions include:

- A. Federal Enforceability
- B. Permit Expiration
- C. Recordkeeping and Reporting
- D. Annual Compliance Certification
- E. Permit Deviation Reporting
- F. Failure/Malfunction Reporting
- G. Severability
- H. Duty to Comply
- I. Need to Halt Reduce Activity Not a Defense
- J. Permit Action for Cause
- K. Property Rights
- L. Duty to Submit Information

- M. Duty to Pay Permit Fees
- N. Fugitive Dust Emission Standards
- O. Startup, Shutdown, and Malfunction
- P. Alternative Operating Scenarios
- Q. Inspection and Entry Requirements
- R. Reopening for Cause
- S. Permit Availability
- T. Transfer of Permits
- U. Malfunction as an Affirmative Defense
- V. Permit Revocation or Termination For Cause
- W. Duty to Supplement or Correct Application
- X. Stratospheric Ozone Protection
- Y. Accidental Release Prevention
- Z. Changes to Permits for Emission Trading
- AA. Emissions Trading

PERIODIC MONITORING

The EPA periodic monitoring guidance, dated September 18, 1998, indicates on page 4 that periodic monitoring is required for each emission point at a source, subject to Title V of the Act, that is subject to an applicable requirement. The units requiring periodic monitoring at this source are the vapor degreasers. Most of the applicable requirements for the degreasers come from MACT Subpart T which includes, as per EPA's periodic monitoring guidance, sufficient monitoring provisions to satisfy Title V periodic monitoring. The applicable periodic monitoring for the remaining degreaser requirements (from the 2004 NSR permit) is defined as follows:

Table 1 - Periodic Monitoring for the vapor degreasers (E3 and E4)

	Limitation	Parameter	Monitoring	Recordkeeping	Reporting
1	The annual throughput of perchloroethylene shall not exceed 90 tons for E-3	perchloroethylene throughput, tons per year	calculated monthly as the sum of each consecutive 12 month period.	The monthly throughput of perchloroethylene.	Semi-Annual Compliance Certification 5-80-110 F.2.a.
2	The annual throughput of perchloroethylene shall not exceed 31.5 tons for E-4	perchloroethylene throughput, tons per year	calculated monthly as the sum of each consecutive 12 month period.	The monthly throughput of perchloroethylene.	Semi-Annual Compliance Certification 5-80-110 F.2.a.
3	The Volatile Organic Compound emissions from the operation of the degreaser E-3 shall not exceed 60 lbs/hr.	Hourly perchloroethylene usage, lbs/hr	accumulated monthly, calculated based on monthly usage and uptime	maintain records of perchloroethylene usage	Semi-Annual Compliance Certification 5-80-110 F.2.a.
4	The Volatile Organic Compound emissions from the operation of the degreaser E-4 shall not exceed 6.71 lbs/hr.	Hourly perchloroethylene usage, lbs/hr	accumulated monthly, calculated based on monthly usage and uptime	maintain records of perchloroethylene usage	Semi-Annual Compliance Certification 5-80-110 F.2.a.
5	The Volatile Organic Compound emissions from the operation of the degreaser E-3 shall not exceed 90.0 tons/yr	yearly perchloroethylene usage, tons/yr	calculated monthly as the sum of each consecutive 12 month period.	calculated monthly as the sum of each consecutive 12 month period.	Semi-Annual Compliance Certification 5-80-110 F.2.a.
6	The Volatile Organic Compound emissions from the operation of the degreaser E-4 shall not exceed 31.5 tons/yr	yearly perchloroethylene usage, tons/yr	calculated monthly as the sum of each consecutive 12 month period.	calculated monthly as the sum of each consecutive 12 month period.	Semi-Annual Compliance Certification 5-80-110 F.2.a.

Table 1 above describes the periodic monitoring requirements for the degreasers E-3 and E-4. The requirements are generally contained in the 2004 permit, but some conditions have been developed to ensure that the periodic monitoring requirements of 9 VAC 5-80-110 E.2. have been met.

Items 1 and 2) which are Conditions #7 and #8 from the 2004 permit contain the throughput limits that support the emission calculations developed from the material balance information provided by the source. The source is required to maintain records that demonstrate compliance with this annual limit. Records are kept on a monthly basis and the annual limit is calculated as the sum of each consecutive 12 month period. This approach is consistent with all annual limits such as Items 5 and 6 above (Conditions #7 and #8 of the 2004 permit) which limit the annual emissions of Perchloroethylene.

Items 3 and 4) are the short term limits for Perchloroethylene emissions from the degreasers. The pounds per hour emission limit was developed from projected material balance information while the degreaser was operating at its maximum rated capacity. Demonstrating compliance with the lbs/hr emission limit is accomplished by maintaining perchloroethylene usage records and the hours of operations on a monthly basis. By dividing these numbers, the pounds per hour perchloroethylene usage rate can be compared to the maximum rated capacity and compliance determined by demonstrating that the unit operated below its maximum rated capacity.

All other applicable requirements that might be subject to periodic monitoring are from the MACT subpart T standard (promulgated in 1993). By definition, per EPA's periodic monitoring guidance (which includes CAM), MACT and NSPS standards promulgated after 1990 contain sufficient monitoring to meet Title V periodic monitoring standards without any additional monitoring.

INSIGNIFICANT EMISSION UNITS

The insignificant emission units are presumed to be in compliance with all requirements of the Clean Air Act as may apply. Based on this presumption, no monitoring, recordkeeping or reporting shall be required for these emission units in accordance with 9 VAC 5-80-110. Insignificant emission units include the following:

Emission Unit No.	Emission Unit Description	Citation (9 VAC)	Pollutant Emitted (5-80-720 B)	Rated Capacity (5-80-720 C)
B1	Cleaver Brooks Natural Gas-Fired Boiler	5-80-720 C.2.	N/A	1.046 MMBtu/hr
B2	Parker Natural Gas Fired Boiler	5-80-720 C.2.	N/A	0.8 MMBtu/hr
E1	Hairpin Bender Lubrication	5-80-720 B.2.	VOC	N/A
E2	Punch Press Lubrication	5-80-720 B.2	VOC	N/A
E4	Brazing	5-80-720 B.1.	PM-10	N/A
E5	Welding	5-80-720 B.1.	PM-10/HAP	N/A
E6	Paint Spray Booth (water based inks)	5-80-720 B.2.	VOC	N/A
E7	Crafting Saws	5-80-720 B.1.	PM-10	N/A

CONFIDENTIAL INFORMATION

The permittee did not submit a request for confidentiality. All portions of the Title V application are suitable for public review.

PUBLIC PARTICIPATION

The proposed permit will be placed on public notice in the *Richmond Time Dispatch* from April 7, 2006 to May 6, 2006.